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Abstract

This study investigates the effectiveness of the contractual governance of Chinese fund management companies by using comprehensive governance data over the period from 2005 to 2015. The study finds that board size a negative impact on its performance and market share. The findings are consistent with the 'agency cost' hypothesis. This paper also finds a positive association between the percentage of independent directors and market share and a negative correlation between the percentage of independent directors and the expense ratio. Moreover, a fund management company with a higher level of managerial ownership and a higher proportion of institutional investors results in more effective fund governance; however, a larger institutional investor holding may lead to a higher expense ratio.

JEL classification: G20, G23, G30, G34

Keywords: Contractual governance, governance effectiveness, board size, board structure, managerial ownership, institutional investors' holding

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Chapter 1: Introduction

It is mandatory for each mutual fund to have its own board of directors and they are required to register as a corporation (an independent legal entity) in the United States. As shareholders, fund investors claim their proportionate interests on the fund total net asset value. The corporate governance structure in the U.S. mutual fund industry was created by the Investment Company of 1940, supplemented with the Securities and Exchange Commission (SEC) rules. Mutual fund governance provides for a board of directors to be instituted which is elected from shareholders. By protecting shareholders' interests, the board of directors are encouraged to supervise the performance of the fund for the overall benefit of fund investors. There have been several papers which have shown that corporate governance plays a key role in protecting the interests of fund investors (Tufano and Sevick, 1997; Del et al, 2003; Ferris and Yan, 2009; Adams et al, 2010; Fu and Wedge, 2011 and Kryzanowski and Mohebshahedin, 2016). The structure of U.S. mutual fund governance is presented in Figure 1. As shown in this diagram, the board has a significant influence on the management team through the selection of financial advisors (fund managers) and setting management fees.

China has a different type of mutual fund governance structure, known as contractual mutual fund governance. Gong et al (2016) claim that a contractual mutual fund can be regarded as a product or services provided to fund investors by a fund management company, as opposed to providing equity shares which is the case for a corporate mutual fund in the U.S. The organizational structure of a contractual mutual fund is presented in Figure 2. This shows that fund investors are only fund unit holders, as they enter into a legal sales contract with a fund management company whereby they acquire the right to participate in a certain asset pool. The shareholders of the fund companies could be an insurance company, a commercial bank or other kinds of financial institutions. Furthermore, there is a lack of direct representation for fund investors in fund company governance. Without the voice of investors being represented in the governance of a fund management company and a weak institutional environment, effective

corporate governance becomes vital for protecting the interests of fund investors. If the governance mechanism is ineffective, redemption of their shares will be the only recourse for fund investors.

This raises the question of whether fund investors' interests are protected under contractual mutual fund governance. A good governance structure will effectively promote fund investors' interests. Those interests[c] include a fund management company's expense ratio and performance, as those factors are at the top of the list of investor interests. In addition, this paper adopts the market share of a fund management company as a third factor. This factor may reflect whether fund investors have preferences for a particular governance structure. Hence, the purpose of this paper is to examine governance effectiveness, which is reflected by a fund management company's expense ratio, performance and market share under contractual governance. The first measure of governance effectiveness is whether a certain type of governance structure is related to the expense ratio. All else being equal, fund investors will choose funds with a lower expense ratio. Del et al (2003) indicate that boards with a higher percentage of independent directors have a negative impact on the expense ratio. The second measure of governance effectiveness is whether a fund management company's performance is correlated with board structure. This link is indirect; thus, if the board can exercise better monitoring of the management and recognize skilled fund managers, the managers will work more diligently and reduce misbehaviour. Finally, the third measure of governance effectiveness is a fund management company's market share. Khorana and Servaes (2012) claim that market share represents the culmination of all the decisions made by fund families and the investors' response to those decisions. Hence, market share may reveal investors' preference for a certain type of governance structure.

This paper differs from previous studies on mutual fund governance in the following ways. Firstly, this is the first paper to investigate whether contractual mutual fund

[c] Kong and Tang (2008) employ fund fees, performance and flows as fund shareholders' interests. Guercio et al (2003) use expense ratios as fund shareholders' interests.

governance has an important impact on governance effectiveness. This will help investors to understand how their interests can be protected by a certain type of governance structure. And also, it will be vital for academics and policy makers to recognize the potential determinants of mutual funds governance effectiveness. Secondly, this paper will help investors to recognize which strategies have been pursued by a fund management company and reflect the responses of investors to these strategies by examining the effect on a fund management company's market share.

The rest of the paper is organized as follows: Chapter 2 reviews studies on corporate governance of mutual fund management companies and also discusses the development of the hypotheses. Chapter 3 explains the methodology and data used. Chapter 4 presents the results of the empirical study and offers some discussion. The final chapter summarizes key findings and suggests policy implications.

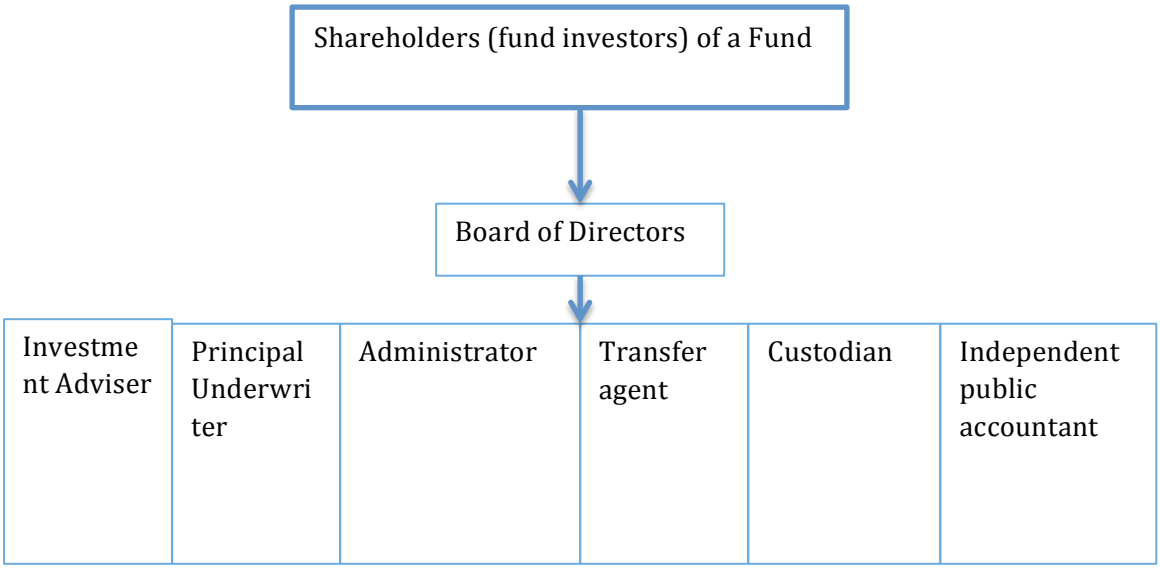

Fig.1 The figure shows the governance structure of a corporate mutual fund in the U.S.

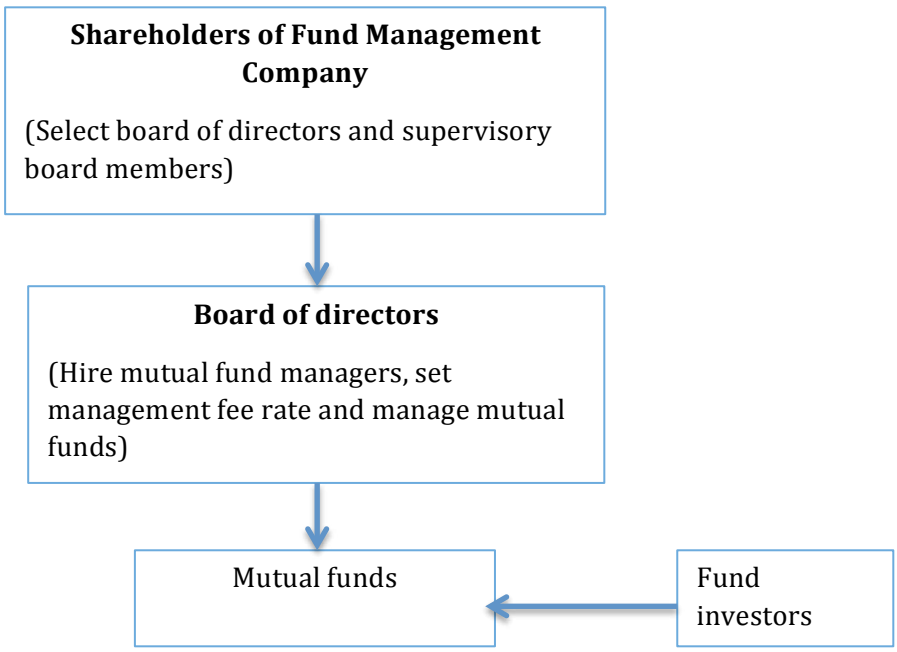

Fig.2 The figure illustrates the governance structure of contractual mutual fund governance in China

Chapter 2: Literature review

2.1 Background to mutual fund industry

The early fund literature focuses particularly on the fund level and various aspects of mutual fund performance (see, e.g. Golec, 1996; Wermers, 2000; Pastor and Stambaugh, 2002; Cuthberson et al, 2008, Fama and French, 2010; Cuthberson et al, 2012). In recent years, research at the level of the fund family has begun to obtain greater prominence. The growing literature on fund families includes that by Mamaysky and Spiegel (2002), which suggests that new funds should be created which allow investors to take advantage of the firm's research in new ways at the fund family level. Offering a new fund which differs from existing funds may appeal to new investors. However, Massa (2003) finds a robust and statistically significant negative association between the degree of product differentiation and fund performance.

Nanda et al (2004) indicate that there is a strong positive spillover effect from having a star performer in the fund family and implies that star performance contributes to bringing larger cash inflow into the fund and to other funds within the family. Kempf and Ruenzi (2008a) agree that reaching a top position within the fund family results in large inflows of cash. Furthermore, they also find that this consequence is much stronger in large families than in small families. This conclusion is also supported by Jank and Wedow (2013), as they claim that new cash inflows pursuits the top performers within the family and discover that intra family rankings play a significant part in investor redemption.

However, these studies focus on the impact of past mutual fund performance and product differentiation, rather than governance. The existence of academic studies on mutual fund governance highlights the significance of this topic to both academics and capital markets.

2.2 Board size

According to Agency theory, a larger board acts less efficiently than a smaller board because of a rise in agency conflicts which might be contributed to by inefficient communication and cooperation costs. On the other hand, board size is positively related with larger firms' performance, as larger firms might place greater demands on a larger board which can legitimately orient the company to its external environment (Pfeffer, 1972). With respect to the literature on mutual fund board size, Tufano and Sevick (1997) claim that smaller fund boards size are associated with lower shareholder fees. Del et al (2003) confirm this result by analyzing in closed-end investment companies. Kong and Tang (2008) adopt a unique governance structure known as the unitary board (one board). They conclude that unitary boards of small size may tend to have lower fees. Additionally, Adams et al (2010) find that board size is negatively related to overall performance by using manually-collected data on boards of directors, consisting of 976 funds and derived from yearly observations taken from 1998 to 2007 in the U.S. market.

Furthermore, Liu (2009) documents that board size is negatively correlated with firm performance and explains that the communication issue could be the main factor resulting in a negative impact by examining 1196 listed companies in China. By the contrast, Chen (2015) finds that listed firms with larger boards and more outsider directors have superior performance in China. Based on these arguments and the preferences of investors, it is reasonable to predict that an increase in the board size has a negative effect on governance effectiveness. Therefore, the hypotheses can be defined as follows:

Hypothesis 1a: an increase in the board size could have a positive influence on the fund management company's expense ratio

Hypothesis 1b: an increase in the board size could have a negative influence on the fund management company's performance

Hypothesis 1c: an increase in the board size could have a negative influence on the fund management company's market share

2.3 Board structure

Previous studies of corporate governance have recognized the importance of board structure. For instance, Jensen and Meckling (1976) show that firms with more independent directors have a positive influence on performance. Dalton et al (1998) also claim that firms with independent boards can diminish the managerial and operational risks. Tufano and Sevick (1997) study the composition of boards of directors of U.S. open-end mutual funds. They find that funds with a greater proportion of independent directors tend to have lower shareholder fees.

Furthermore, Ding and Wermers (2005) and Khorana et al (2007) show that there is a positive relationship between board independence and a decision to replace underperforming fund managers or merge one underperforming fund with another underperforming fund. According to these studies, more independent directors in a board are normally more beneficial to shareholders. However, by contrast, the results of Ferris and Yan's (2007) study show that overall fund performance and the probability of a fund scandal are not correlated with either chair or board independence. More recently, Fu and Wedge (2011) claimed that the likelihood of fund managers with poor past performance being replaced increases with a greater percentage of independent directors on the board. Kryzanowski and Mohebshahedin (2016) further find that funds with a higher percentage of independent directors were associated with lower expense ratios in the closed-end funds market in the years from 1994 to 2013.

However, there has been little attempt to analyse the issue of independent boards in the Chinese mutual fund industry. Most studies in the literature focus on public companies. For instance, Jiang (2007) finds that having a higher proportion of independent directors on the board has a positive impact on Chinese listed companies. This finding is supported by Zhao and Zeng (2008) and Shan and McIver (2011). Recently, Wang (2014) reviews 30 empirical studies about the relationship between board independence and firm performance and concludes that independent directors may play an advisory role but not a monitoring role in Chinese listed firms. Moreover, Liu et al (2015) offer the first comprehensive and robust evidence on the

relationship between board independence and firm performance in China and discover that independent directors have an overall positive effect on firm operating performance by adopting instrumental variables, GMM estimator and the difference in differences method. Although these empirical studies illustrate the impact of board structure on the fund level and in public companies, it is possible to predict that a fund management company with a higher percentage of independent directors on the board is more effective.

Hypothesis 2a: a fund management company with a greater percentage of independent directors will lead to a decrease in the fund management company's expense ratio

Hypothesis 2b: a fund management company with a greater percentage of independent directors will lead to an increase in the fund management company's performance

Hypothesis 2c: a fund management company with a greater percentage of independent directors will lead to an increase in the fund management company's market share

2.4 Managerial ownership

Based on corporate governance studies, in general, the interest of a manager is in alignment with shareholders if the manager has partial ownership of the company (Jensen and Meckling, 1976, and Murphy, 1999). In support of this conclusion, Khorana et al (2007) find that managerial (fund managers') ownership has desirable incentive alignment attributes for mutual fund investors according to their mutual fund studies. In addition, it is not only fund manager ownership which has a positive impact on fund performance, but also board ownership. Chen et al (2008) find that there is a greater proportion of directors who hold shares in the funds they oversee, and indicate that board ownership is positively and significantly correlated with benefits to shareholders. Cremers et al (2009) also suggest that mutual funds with lower levels of director ownership significantly underperform funds with higher levels of director ownership at both the fund family and the individual fund levels, as the

interests of the directors are more in line with shareholder interests. Furthermore, Fricke (2015) claims that fund boards with lower director holding have a lower likelihood to replace underperforming fund managers, based on 2003 data from 606 mutual funds. This helps to explain why some fund managers might consistently underperform their peers over a long time. According to studies on Chinese public companies, Wei et al (2005) and Yuan et al (2008) claim that managerial ownership has a positive impact on firm performance which is consistent with the "convergence of interest" hypothesis. Based on these arguments, funds with higher levels of board ownership will become more aligned with shareholders' interests. Therefore, it is possible to hypothesise that an increase in managerial ownership will have a positive impact on governance effectiveness.

Hypothesis 3a: an increase in managerial ownership could have a negative impact on the fund management company's expense ratio

Hypothesis 3b: an increase in managerial ownership could have a positive impact on the fund management company's performance

Hypothesis 3c: an increase in managerial ownership could have a positive impact on the fund management company's market share

2.5 Institutional investors

In theory, fund investors can always redeem their shares at net asset value if they dislike the way the fund is operating. Fama and Jensen (1993) claim that this market governance reduces the need for other forms of governance in mutual funds. Generally, institutional investors are assumed to be better informed than individual investors. James and Karceski (2006) indicate that funds with a higher institutional holding perform better than other forms of funds, both before and after adjusting for risk and expenses. Evans and Fahlenbrach (2012) also find that the fund-flow of sophisticated institutional investors is more sensitive to fund expenses and risk–adjusted performance than that of retail investors. Recently, Gong et al (2016) took the role of investor composition as a measure of external governance and find that more institutional investment in a fund contributes to improving the fund performance

in the case of the Chinese equity mutual fund market. According to this empirical evidence, institutional investors are more sophisticated and resourceful than retail investors in the way of monitoring the operation of management team. Therefore, the paper hypothesizes that an increase in the institutional investors' holding in a fund management company will have a positive impact on its governance effectiveness.

Hypothesis 4a: an increase in the institutional investors' holding in a fund management company will have a negative impact on its expense ratio

Hypothesis 4b: an increase in the institutional investors' holding in a fund management company will have a positive impact on its performance

Hypothesis 4c: an increase in the institutional investors' holding in a fund management company will have a positive impact on its market share

Chapter 3: Data and methodology

The main source of mutual fund data is the China Securities Market & Accounting Research (CSMAR) database (also known as the Guo Tai An (GTA) database). This database has been widely used in prior studies (Zhang and Ding, 2006; Yuan et al, 2008; Ding et al, 2010; Feng and Johansson, 2015 and Jiong et al, 2016). The CSMAR database is a leading global provider of Chinese data and provides seven major database series, including: stock market; corporate, bonds; funds; industry; and economy. Information is available both at the fund management company level and at the individual fund level. The sample period is from 2005 to 2015 and includes funds in all investment objectives. The year 2005 has been chosen as the commencement year in this paper because open–end funds only started in 2001, and there is a lack of comprehensive data before 2005. In addition, the CSMAR database describes several classifications of investment objectives for each fund.

Furthermore, a number of mutual funds have several share classes, especially in the case of money market mutual funds and bond market mutual funds, and the CSMAR database separates each share class as an individual fund. However, these individual funds represent claims on the identical underlying assets, and have the same returns before expenses and loads. The only difference lies in their fee structure or in their clientele. In this paper, we aggregate these multiple share chasses into one fund. The fund characteristics are calculated based on the TNA–weighted average.

Research design

This paper opts for a fixed effect estimation and the two-step ‘system’ generalized methods of moments (GMM) estimation to examine governance effectiveness. The fixed effect analysis can control for omitted heterogeneous fund management company–specific effects. Hence, the general model for measuring the relationship

between fund governance and governance effectiveness can be expressed as follows:

$$GEffectiveness_{i,t} = \alpha_0 + \beta_1 Corporate\ Governance_{i,t} + \beta_2 Control_{i,t} + \varepsilon_{i,t} \quad (1)$$

where $GEffectiveness_{i,t}$ is the dependent variable and is reflected by a fund management company's expense ratio, performance and market share; $Corporate\ Governance_{i,t}$ is board size, board structure, managerial ownership and institutional investors' holding; $Control_{i,t}$ represents the control variables including the fund management company's size, number of funds, number of funds started and the company's focus, while $\varepsilon_{i,t}$ denotes the error term.

Furthermore, by taking into account endogeneity issues[d], this paper follows the study by Khorana and Servaes (2012) and adopts the two-step system GMM estimators (Arrelano and Bover, 1995 and Blundell and Bond, 1998) with bias–corrected robust standard errors, which was introduced by Windmeijer (2005). This model includes one lag of governance effectiveness as an independent variable. The results of the two–step system GMM estimator are tested via Hansen's diagnostic test for instrument validity, and by Arellano and Bond's (1991) test for second–order autocorrelation of the error terms.

The dynamic panel model takes the following form:

$$GEffectiveness_{i,t} = \alpha_0 + \beta_1 GEffectiveness_{i,t-1} + \beta_2 Corporate\ Governance_{i,t} + \beta_3 Control_{i,t} + \varepsilon_{i,t} \quad (2)$$

[d] This paper employs Roodman (2009) "Xtabond2" specification in Stata.

Governance variables

In this section, the paper provides a discussion of the governance characteristics used in the analysis of a fund management company's governance effectiveness. The governance variables include board structure, board size, managerial ownership and institutional investors' holding. The board structure is represented by the percentage of independent directors on the board of the fund management company. Independent directors are less likely to be in conflict with shareholder interests, as they are not employed by the investment advisors. Therefore, independent directors should have more incentive to monitor the operation of fund management team. The board size is the number of directors on the board of the fund management company. Managerial ownership is the ownership percentage of board directors and fund managers in a fund management company. In addition, the institutional investors' holding is the percentage of shares held by institutional investors in a fund management company.

Governance effectiveness

This paper adopts three different variables to measure governance effectiveness. The first measure of governance effectiveness is the fund management company's expense ratio. Each fund expense ratio is computed by dividing fund expenses by a fund's total assets. Fund expenses include management, administrative, operating and advertising costs. However, sales charges are not included in the expense ratio. The fund management company's expense ratio is calculated by the weighted average of expense ratios across all funds within the fund management company. Tufano and Sevick (1997) and Del et al (2003) indicate that boards with a higher percentage of independent directors have a negative impact on the expense ratio.

The second measure of governance effectiveness is the fund management company's performance. This paper employs two different measurements of a

company's performance. The first method is the fund management company's raw return which is calculated by the weighted average of raw returns across all funds within the fund management company. The second method is the abnormal return which is the difference between the fund management company's raw return and its market return[e]. Finally, the third measure of governance effectiveness is the fund management company's market share. Market share is calculated by adding together all the assets managed by each company and then dividing this figure by the total managed assets in the fund industry. Khorana and Servaes (2012) claim that market share represents the culmination of all the decisions made by fund families and the investors' response to those decisions. Hence, the market share may reveal fund investors' preference for certain types of governance structure.

Control variables

In addition to the governance variables described in the previous section, this paper also includes a number of control variables which might have an impact on governance effectiveness. The following discussion provides a brief description of these control variables. Fund management company size is the log of total net assets managed by the fund company. This variable is used to control for possible economies of scale in the mutual fund industry. Family focus is defined as the Herfindahl index of fund level within the family. It is computed as the sum of the squared fractions of the company's assets invested in each fund. More focused fund management companies are easier and less costly to monitor, as their investment strategies are less diverse. Siggekow (2003) claims that funds with more focused fund management companies are more likely to obtain higher returns. Hence, more focused fund management companies may be more likely to attain a higher market share via excellent performance. However, Khorana and Servaes (2012) did not observe a significant relationship between market share and family focus in their research on U.S. mutual funds. Number of objectives per fund management company is the total number of objectives that a fund management company has in

[e] The market return is calculated by 40% of the Shanghai Composite index, 40% of the Shenzhen Composite Index and 20% of the Shanghai Government bond index (Zeng et al, 2006; Jin and Wu, 2007).

a given year. Number of funds per fund management company is the total number of funds in a specific fund management company in a given year. Number of funds started is the total number of new funds started by a fund management company in a given year.

Descriptive statistics

Table 1 provides the summary statistics of the sample. Panel A indicates that the fund management companies have 8.68 directors on average, which is similar to the figure of 8.58 obtained by Fu and Wedge (2011) and 9.24 by Kong and Tang (2008). The average number of independent directors is 3.32, which is much less than Kong and Tang's (2008) average of 7.2 in their sample for the U.S. The average percentage of independent directors is 38.72% which is also less than that of 78% obtained by Kong and Tang (2008). The average value of managerial ownership for directors is only 0.07%, while the supervisory board size is 3.68 on average. Panel B shows that institutional investors hold 69.13% of total assets in fund management companies on average, which indicates that the majority of fund investors in China are institutional investors. However, Gong et al (2016) find that institutional investors only hold 23.18% of shares in equity mutual funds in China, on average. Panel C reveals that the average fund management company expense ratio is 1.87%. The average fund performance measured by the objective–adjusted return is -4.95%, which implies that the fund management companies performed worse than the market on average during the sample period. The average market share of a fund management company is 1.46%, which is greater than that of 0.36% obtained by Khorana and Servaes (2012) for their U.S. sample. Concerning the fund management company specific variables shown in Panel D, during the sample period, the average size of a fund management company is 36 billion Chinese Yuan. The average number of new funds started is 3.34. Meanwhile, the average number of funds per fund management company is 12.2 and the average number of objectives per fund management company is 5.77. Finally, the Herfindahl index across funds is 3990.12 on average.

<Insert Table 1 about here>

Table 2 shows summary statistics on the evolution of the family market share during the sample period from 2005 to 2015. According to these statistics, there was an increase in the number of families competing in the industry from 47 in 2005 to 101 families in 2015, with the rise being especially noticeable after the financial crisis from 2008 to 2010. Over the same period, the average market share of a family decreased from 1.55% to 1.06%. This implies that the mutual fund market became more fragmented over the sample period. Interestingly, the market share of the three largest families declined significantly from 2005 to 2006. However, the market share of the three largest families remained relatively constant at approximately 20% - 23% since 2006. Finally, the market share of the five largest families appeared to decrease slightly from 35.95% in 2006 to 31.66% in 2015.

<Insert Table 2 about here>

Multicollinearity

Table 3 displays all the correlation coefficients of the independent variables. The results show that almost all of the correlation coefficients are below the value of 0.4. This means that the independent variables in the regression are not highly correlated. However, it is noteworthy that there is a high positive correlation between the number of funds and the number of funds started. Therefore, those two variables are not in the same regression.

<Insert Table 3 about here>

Chapter 4: Empirical results

This section provides the empirical results regarding whether the unique governance structure of China's mutual funds industry protects fund investors' interests after controlling for various fund management company characteristics, for instance, fund management company focus, size and number of funds started.

Board size–governance effectiveness relationship

Tables 4 to 6 present the regression results for the relationship between board size and corporate governance effectiveness using different proxies for fund management company governance effectiveness. This paper finds that board size has a positive impact on a fund management company's expense ratio (Table 4, Model 1 and 2), but it is statistically insignificant. This positive coefficient may support the 'agency cost' hypothesis developed by Jensen and Meckling (1976), suggesting that a larger board could lead to higher information asymmetry and communication and cooperation costs. However, this result differs from previous empirical studies by Tufano and Sevick (1997), Del et al (2003), Cremers et al (2009), Adams et al (2009) and Liu (2009), as they find a statistically significant relationship between expense ratios and board size.

For the measure of raw return, the board size is positively related to raw return at the 10% significance level (Table 5, model 1). This finding is contrary to Jensen's (1983) conclusion that a larger board acts less efficiently than a smaller board because of a rise in agency conflicts. Thus, a larger board size could hamper the fund management company's performance. When performance is adjusted by market return, board size is negatively and insignificantly related to the fund management company's performance. Therefore, this finding does not support the negative correlation between board size and performance reported by Liu (2009), Adams et al (2010) and Yu et al (2015).

Furthermore, Table 6 reports that the board size is negatively correlated with the market share according to different fund management company performance measures. The result remains at the 5% level of significance (Table 6, Model 1 and 2). An increase in board size would lead to a decrease in a fund management company's market share. This implies that when the board size increases by one unit, the market share of a fund management company would decrease by approximately 0.12%. According to the literature, no previous research has been conducted into the impact of board size on the market share of fund management companies in the mutual funds industry. In the literature on public companies, Allen and Gale (2000) point out that those companies in Japan with a large board size are associated with higher quality, cheaper prices and better designs, all of which would increase their market share. Overall, the results support the Hypothesis H1c which states that an increase in the number of board directors could reduce the market share of a fund management company.

Board structure-governance effectiveness relationship

Regarding board structure, the percentage of independent directors on a board asserts a negative impact on the fund management company's expense ratio at the 10% significance level (Table 4, Model 3 and 4). This means that a fund management company with a higher percentage of independent directors will charge lower fees. An increase of one unit in the percentage of independent directors is associated with a decline of approximately 0.02% in the fund management company's expense ratio. This result is consistent with Tufano and Sevick (1997), Del et al (2003) and Kryzanowski and Mohebshahedin's (2016) studies, as they all document a negative relationship between fund expense ratio and the percentage of independent directors on the board. Therefore, more independent boards are desirable from a fund investor's perspective.

Table 5 shows that, when return or abnormal return approaches are used, the percentage of independent directors is not statistically significant. This result is

consistent with that of Ferris and Yan[f] (2007), as they find no evidence that board independence is significantly related to fund performance. Their findings are robust to an instrumental variable approach. In addition, Yu et al (2015) also support this argument as they reveal that board independence has no effect on a fund management company's performance in China. However, by contrast, Ding and Wermers (2005), Khorana et al (2007), Jiang (2007) and Fu and Wedge (2011) find that boards with a higher percentage of independent directors are associated with a better fund performance. Furthermore, this finding is also not in line with the evidences from China listed firms empirical studies, as Zhao and Zeng (2008), Shan and McIver (2011) and Liu et al (2015) claim that independent boards are effective at curbing agency problems leading to better performance. One possible explanation for this relationship is the shortage of qualified independent directors in China, which means that it is difficult for independent directors to monitor the behaviour of the management team effectively (Yu et al, 2015).

Furthermore, regarding the market share, the percentage of independent directors has a positive impact on the fund management company's market share at the 10% significance level (Table 6, Model 3 and 4). This implies that an increase in the percentage of independent directors may improve the level of the fund management company's market share. This may not support Kong and Tang's (2008) argument that neither an independent chair nor a majority of independent directors is rewarded by more fund flows. Therefore, according to these findings, Hypotheses H2 a and c are supported.

Managerial ownership–governance effectiveness relationship

In terms of the effect of managerial ownership, it can be seen from Table 4 that ownership has a positive impact on expense ratio, but it is statistically insignificant (Table 4, Model 5 and 6). This finding is contrary to that of Meschke (2006) and Cremers et al (2009) as they reveal that non-independent director ownership is

[f] They only use one year's worth of data for analysis.

negatively and statistically correlated with expense ratio. In addition, board ownership asserts a positive impact on fund management company performance at the 10% significance level (Table 5, Model 7). This finding is consistent with earlier studies (Khorana et al 2007; Chen et al, 2008; Evans, 2008; Cremers et al, 2009 and Fricke, 2015), suggesting that fund management companies with a higher level of board or fund manager ownership perform better than fund management companies with lower board ownership. Moreover, this finding is also consistent with the "convergence of interest" hypothesis, indicating that as the proportion of managerial equity ownership increases, managers should have more incentive to maximise the firm value. Hence, this result reflects the fact that managerial interest aligns with fund shareholder interest.

Furthermore, as would be expected, managerial ownership also has a positive impact on the market share of a fund management company. The results are robust at the 5% level of significance (Table 6, Model 5 and 6). The estimated value of the coefficients imply that if there is a one per cent increase in board ownership, the market share of a fund management company may grow by 0.36 or 0.37 basis points respectively, according to Model 5 and 6. This result is in contrast to an earlier empirical study by Kong and Tang (2008)[g]. Finally, it is interesting to note that these results are in line with Hypotheses 3 b and c as they show that an increase in managerial ownership will have a positive impact on a firm's performance and market share respectively.

External governance–governance effectiveness relationship

Concerning the impact of external governance (institutional investors' holding) on governance effectiveness, Table 4 shows a strong positive impact of institutional investors' holding on the expense ratio in Model 7 and 8. The outcomes remain robust at the 1% level of significance (Table 4, Model 7 and 8) but small in

[g] They employ director incentive rather than board ownership, as director incentive is defined as the percentage of independent directors whose investments in the fund family are greater than their total compensation from the fund family; whichever is smaller.

magnitude. This finding implies that a one unit increase in the institutional investors' holding slightly improves a fund management company's expense ratio by 1.33 or 1.31 basis points. However, Evan and Fahlenbrach (2012) claim an opposite view that institutional investors are more sensitive to high fees and poor performance than retail investors. Besides, institutional investors' holding also asserts a positive and significant influence on performance with regard to the abnormal return approach. The result is robust at the 5% level of significance (Table 5, Model 8). This finding is consistent with the study by Evan and Fahlenbrach (2012) and Gong et al (2016), which indicates that fund management companies with a larger institutional investor holding may outperform fund management companies with a smaller institutional investor holding. This is due to the possible stronger monitoring power of large fund holders.

Turning now to the fund management company's market share, the results show that the institutional investors' holding has a positive impact on the market share of a fund management company, but it is statistically insignificant. Overall, fund management companies with higher institutional investors holding will result in charging higher fees and performing superior performance due to better management skills, more research resources and greater monitoring efforts. Therefore, these findings support Hypothesis 4b in showing that an increase in the institutional investor holding in a fund management company will have a positive impact on its performance.

<Insert Tables 4 to 6 about here>

Endogeneity issues

Furthermore, endogeneity may be a concern in relation to the overall connection between corporate governance and governance effectiveness. Earlier analyses of this paper only address the potential issues of serial correlation and

heteroscedasticity in data. Analyses in Tables 7, 8 and 9 address endogeneity issue by employing the dynamic panel analysis (the two–step 'system' GMM). Moreover, regarding the basic diagnostics, the tests (AR(2)) for second order autocorrelation in second differences and the Hansen J–statistics of over–identifying restrictions are insignificant in all the corresponding models (see Tables 7, 8 and 9). The instrument variables will be the lag of each independent variable.

With regards to the board size illustrated in Table 7, the paper finds a consistent result with previous one in Table 4, indicating that board size has no impact on expense ratio. Table 8 reveals that board size has a positive impact on the raw return. The coefficient is statistically significant at the 10% level. By contrast, the relationship is negative in the case of the abnormal return. The result remains robust at the 1% level of significance (Table 8, Model 5). In this regard, the finding supports that of Jensen (1993) in relation to the extent of the abnormal return. In addition, this negative relation is consistent with earlier studies by Adams et al (2009), Liu (2009) and Yu et al (2015), suggesting that board size affects a fund management company negatively, and that a small board size is more effective in enhancing a fund management company's performance. Moreover, board size is reported to have a negative impact on market share (Table 9, Model 1 and 2), but the effect is insignificant. This finding is not consistent with the finding from the fixed effect model.

Table 7 shows that the fund management company's expense ratios are positively related to the board structure. The parameters estimated are not statistically significant in Model 3 and 4. This finding is not consistent with the previous finding from the fixed effect model, suggesting that higher percentages of independent directors are associated with lower expense ratios (Tufano and Sevick, 1997; Del et al, 2003 and Kryzanowski and Mohebshahedin, 2016). However, this result supports Ferris and Yan's (2007) contention that board structure is not significantly related to a fund management company's expense ratio.

Table 8 reports that raw return is positively correlated with board structure in Model 2, but the effect is not statistically significant. When performance is adjusted by market return, board structure asserts a negative impact on a fund management company's performance, but the effect is also insignificant. The results imply that the percentage of independent directors is not correlated with performance. This finding is in line with that of Ferris and Yan (2007) and Yu et al (2015). Turning now to the fund management company's market share, Table 9 shows that board structure has a strong positive influence on a fund management company's market share at the 1% (Table 9, Model 3) and 5% (Table 9, Model 4) level of significance. The results imply that having a greater percentage of independent directors is associated with a higher level of market share. In other words, increasing the percentage of independent directors is an effective way of obtaining a larger market share[h]. This finding is not consistent with that of Kong and Tang (2008), as they state that board structure is irrelevant to fund flows, as well as market share.

With regard to the managerial ownership of a fund management company, there is weak evidence that fund management companies with a high level of board ownership have lower expense ratios. This result is robust at the 10% level of significance (Table 7, Model 6). By replacing abnormal return with raw return (Model 5), the effect becomes no longer statistically significant. The impact of managerial ownership on expense ratio is not in line with the findings reported in the fixed effect model (Table 4, Model 5 and 6). Nevertheless, Chen et al (2008) and Cremers et al (2009) support this negative relationship between managerial ownership and a fund management company's expense ratios. One possible explanation for this phenomenon is that directors' investments in the fund management company are greater than their total compensation from the fund management company. However, there is insufficient data to examine this hypothesis, as fund management companies are not required to disclose their total compensation.

[h] Khorana and Servaes (2012) claim that price competition and product differentiation are both effective ways of obtaining market share.

According to Table 8, in the measure of raw return (Model 3), managerial ownership is negatively related with a fund management company's performance. When performance is measured by abnormal return, managerial ownership has a positive impact on performance at the 1% level of significance (Table 8, Model 7). This result is consistent with previous studies by Chen et al (2008), Evans (2008), Cremers et al (2009) and Fricke (2015), suggesting that fund management companies with higher levels of board or fund manager ownership perform better than fund management companies with lower board ownership. Moreover, Table 9 reports that managerial ownership has a positive impact on the market share of a fund management company. This result remains robust at the 5% level of significance (Model 5). Economically, an increase of one unit in board ownership will tend to improve a fund management company's market share by 1.8 per cent. However, in Model 6, this positive relationship is insignificant.

Concerning the impact of the relationship between external governance and institutional investors' holding in the fund management company on its expense ratios, Table 7 reveals that there is a positive relationship between the institutional investors' holding and the expense ratio. The estimated coefficients are statistically significant at the 5% (Table 7, Model 7) and 1% (Table 7, Model 8) level. The results remain robust to the findings in the fixed effect model (Table 4, Model 7 and 8) and imply that a one unit increase in the institutional investors' holding improves the expense ratios by 1 and 2 basis points, respectively.

In addition, Table 8 displays the impact of the institutional investors' holding on performance, depending on the different kinds of performance measurement. The table shows that the institutional investors' holding has a negative impact on the raw return at the 1% level of significance (Table 8, Model 4), while it has a positive impact on the abnormal return at the 1% level of significance (Table 8, Model 8). This positive relation is consistent with the findings from the previous fixed effect models (Table 5, Model 4 and 8). Additionally, this result supports the earlier studies by James and Karceski (2006), Evans and Fahlenbrach (2012) and Gong et al

(2016), indicating that funds with a higher institutional holding perform better than funds with a lower level of institutional holding.

Next, it is interesting to note that a positive relationship exists between the institutional holding and the fund management company's market share. The parameters estimated are statistically significant at the 1% level (Table 9, Model 7 and 8), depending on the different kinds of performance measurement adopted. An increase in monitory power, which is reflected by an improvement in the level of institutional investor holding, would result in an increase in market share. This result might be explained by the smart money hypothesis which is proposed by Gruber (1996). He claims that if investors are able to identify superior management, they will channel their money into those funds. Overall, the paper finds that an increase in the institutional investors' holding would lead to an increase in the expense ratio, performance and market share of the fund management company.

<Insert Tables 7 to 9 about here>

Shareholder structure – governance effectiveness relationship

Furthermore, according to the Shanghai Stock Exchange (2004) claims that 70% of the independent directors are nominated by top shareholders of the firms. Therefore, it is meaningful to examine whether the shareholder structure of the fund management company has an impact on governance effectiveness. This paper adopts the Top1 and Multop as measures of the shareholder structure of fund management companies. Table 10 illustrates that the Top1 is positively correlated with performance and market share. The results remain robust at the 10% level of significance (Table 10, Model 1 and 3) for both coefficients. This finding is consistent with that of with Gong et al (2016), as they find that the Top1 has a positive impact on fund performance By contrast, the presence of multiple large shareholders is negatively related to market share, performance and expense ratio, but is not

statistically significant. This result is not supported by Gong et al's (2016) findings, as they claim that the presence of multiple large shareholders may reduce fund performance, as the decision–making process can be less efficient, resulting in an inferior performance.

Table 11 reports the impact of supervisory boards[i] on governance effectiveness. In China, the supervisory board serves as one of the two monitoring systems within the Chinese governance mechanism. According to the results displayed in the table, it can be seen that supervisory boards have a negative influence on market share. The result is robust at the 10% level of significance (Table 11, Model 1). This means that an increase in the membership of supervisory boards will reduce the market share of a fund management company. In addition, supervisory boards have no impact on performance and expense ratio. According to prior studies of public companies by Dahya et al (2003), Xi (2006), Firth et al (2007) and Ding et al (2010), the role of supervisory boards is complicated.

Control variables

In terms of the effect of the rest of the fund management company–specific control variables, the paper finds that larger fund management companies charge considerably lower fees, indicating the existence of economies of scale in the mutual fund industry. This result is consistent with the previous studies by Ferris and Yan (2007) and Cremers et al (2009). Additionally, an increase in fund management company size is found to decrease the raw return. This finding could be explained by the liquidity constraint hypothesis proposed by Chen et al (2004). However, in fact, the opposite relationship exists between company size and abnormal return. Fund

[i] Supervisory board indicates the number of supervisors on the board of the fund management company and is also one of the characteristics of the German board system that has been recognised as among the most effective governance mechanisms (Shleifer and Vishny, 1997). According to China Company Law (1994), the function of the supervisory board is to monitor the financial affairs and manage the regulatory compliance of the board of directors and senior managers.

management company size also has a positive impact on market share. Finally, the dynamic panel models confirm the impacts of fund management company size on expense ratios, performance and market share.

Turning now to the impact of the number of new funds started, the paper finds a negatively significant correlation between the number of new funds started and expense ratios. The detrimental impact of new funds on expense ratios could be caused by extra expenses involved in opening new funds or the dilution in management focus as a result of establishing new funds. The number of funds is shown to have a positive impact on raw return in all the tables, but is only significant in the dynamic panel models. It is noteworthy that the relationship is negative in the case of abnormal return and market share. This result does not support the findings of Khorana and Servaes' (2012) study, which suggests that a larger number of funds could positively affect market share. Furthermore, this paper also reports that the Herfindahl index across funds has a negative impact on expense ratios in the fixed effect models, while its influence on performance and market share is positive in all the corresponding models. Not surprisingly, the paper finds that performance also important for market share. Both performance measurements, that is, return and abnormal return, have a positive and significant impact in Table 6. This fining is consistent with study Khorana and Servaes (2012). However, expense ratios not matter for market share.

Besides, the evidence on the impact of lagged performance is mixed in Table 8. More specifically, lagged return has a positive impact on performance at the 1% significance level in all corresponding models. On the contrast, lagged abnormal return has a negative impact on performance at the 1% significance level as well. The results of negative correlation will be the main finding. Therefore, the 'winner's repeat' hypothesis[j] does not supported. The lagged expense ratio and market share, both have a positive and significant impact on expense ratio and market share respectively (Tables 9 and 10).

[j] The 'winner's repeat' hypothesis refers to fund managers have ability to obtain abnormal return persistently.

Robustness check

This section presents the last robustness check in Tables 12 to 14. When the abnormal return and expense ratio are replaced by the objective[k] adjusted return[l] and the objective adjusted expense ratio[m] as a robustness exercise following the study Khorana and Servaes (2012), the results remain consistent with prior findings except for the relationship between managerial ownership and fund management companies' performance is no longer statistically significant.

<Insert Tables 12 to 14 about here>

Chapter 5: Conclusion

This paper uses a sample of Chinese mutual fund management companies from between 2005 and 2015 to explore whether fund investors' interests are protected

[k] The Following objective categories are used to calculate objective adjusted returns and expense ratio: Global equities, Asian equities, Emerging markets Equity, US equity, global index, global bonds and equities, specialty materials, long term bonds, short term bonds, hybrids bonds, income equities, growth equities, balanced equities, value investment equities, appreciation equities, indexes, stable growth equities, aggressive growth equities, money.

[l] The calculation of objective adjusted return is to calculate the value of weighted average return for each investment objective, where the weight is the relative size of the fund within the objective. Then, return of each fund subtracts this weight average return in the fund company. Finally, it is to calculate the weight average of these objective adjusted returns across all funds within the fund management company.

[m] The calculation is the same procedure used to calculate objective adjusted return.

under the unique governance structure by employing a fixed effect model and the two-step 'system' GMM model. Those interests include a fund management company's expense ratio, performance and market share. This paper adopts two different measurements of a fund management company's performance. The abnormal return is the main measurement of a fund's performance.

This paper reveals that having a larger number of directors on the board of the fund management company results in the company achieving a larger market share and finds weak evidence to support the contention that the board size of fund management companies positively affects performance regarding the extent of the raw return. In addition, having a greater percentage of independent directors in the fund management company means that the monitoring of management will be more efficient, resulting in a lower expense ratio and a higher market share. From the perspective of fund-holder composition, the paper finds that fund management companies with a higher level of managerial ownership perform better than fund management companies with a lower level of managerial ownership. In addition, a higher level of managerial ownership is also associated with a greater market share. Finally, this paper discovers that the presence of institutional investors reinforces the monitoring of fund management, which in turn brings superior fund management company performance. However, a higher level of institutional investor holding in a fund management company might contribute to a higher expense ratio. Most of these results are robust to the two-step 'system' GMM model. For the two–step 'system' GMM model, this paper further reveals weak evidence that a fund management company with a larger board size might incur a higher expense ratio. Moreover, a higher level of managerial ownership might result in a lower expense ratio. It is also interesting to note that the empirical evidence observed for developed markets relating to fund management company characteristics, for instance, company assets, number of funds and number of funds started, also have an important influence on governance effectiveness in China.

The findings of this paper offer potential regulatory improvement in the governance arrangements for the mutual fund industry. For instance, if regulators are concerned

about the fees charged to fund investors, the findings regarding the relationship between expense ratio and governance mechanisms show that a form of contractual governance with a smaller board size, a higher percentage of independent directors and a higher level of managerial ownership leads to improved governance effectiveness. In addition, this paper also highlights the importance of the relationship between governance effectiveness and institutional investors' holding, as the presence of institutional investors are more powerful than individual fund investors in monitoring of fund operation.

This paper has also examined the effect of the shareholder structure of fund management companies and the role of supervisory boards on governance effectiveness. The results show that a fund management company which only has one large shareholder will achieve a larger market share and better performance. In addition, a greater number of supervisory boards in the fund management company will lead to a smaller market share. Supervisory boards play a less effective role than independent directors under the existing contractual governance arrangements in China.

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Table 1. Summary statistics

Variables	Mean	SD	MIN	MAX	Median
Panel A (1): Governance Variables					
Board size	8.68	1.57	5	13	9
Supervisory Board size	3.68	1.37	0	8	3
Board structure	3.32	0.58	0	6	3
Portion of Independents (%)	38.72	5.98	0	60	37.5
Managerial ownership(%)	0.07	0.26	0	3.94	0.02
Panel A (2): External Governance variable					
Institutional Investor Hold (%)	69.13	22.81	0.36	100	74.53
Panel B: Governance Effectiveness					
Expense ratio(%)	1.87	1.13	0.009	10.17	1.76
Abnormal retrun(%)	-4.95	24.56	-115.75	65.57	1.3
Market share (%)	1.46	1.83	0.0002	15.15	0.75
Panel C: Fund company - specific varaibles					
Company Size (in billions)	36	62.4	0.012	684	15.2
No. of Objective per company	5.77	3.43	1	16	6
No. of funds per company	12.2	13.29	1	83	7
Herfindahl index across funds	3990.12	2995.3	509.11	21362.8	2968.3
No. of funds started	3.34	4.23	0	34	2

Note: This table presents summary statistics the mean, standard deviation, minimum, maximum and median values for the variables used in analyzing fund management company's governance effectiveness from 2005 to 2015. Board size is the number of directors on the board of the fund management company; Managerial ownership is the percentage of ownership for board directors in a fund management company; The board structure will be represented by the number of independent directors; Portion of independents is the percentage of independent directors; Supervisory board size is the number of supervisors on the supervisory board of fund management company; Institutional investor hold is the percentage of share hold by institutional investors for each fund management company; Market share is the ratio of assets managed by the fund management company and all assets managed by the open-end mutual fund industry; Abnormal return is the difference between return of the fund management company and market return; Expense ratio is weighted average expense ratio computed across all the fund management company's funds; Fund management company size is the log of total net assets managed by the fund management company; Number of objective per fund management company is total number of objectives in a fund management company in a given year; Number of funds per fund management company is the total number of funds in a fund management company in a given year; Herfindahl index across funds is the sum of the squared fraction of each fund's share of total fund management company assets; Number of funds started is total number of new funds started by a fund management company in a given year.

Table 2. Fund management company's market share over time

Year	NoC	MS (%)	MS top 3(%)	MS top 5(%)	MS top 10(%)
2005	47	1.55	25.34	33.77	46.08
2006	52	1.92	22.36	35.95	61.76
2007	57	1.75	19.52	29.23	47.41
2008	59	1.69	21.45	30.14	49.00
2009	60	1.67	19.11	28.08	46.53
2010	60	1.67	20.44	29.13	45.85
2011	64	1.56	19.52	29.20	46.77
2012	70	1.43	20.64	30.83	48.79
2013	77	1.30	19.55	29.75	48.37
2014	92	1.09	28.16	38.63	53.13
2015	101	1.06	22.76	31.66	49.68

Note: This table shows the evolution of fund management company market share over the 2005 – 2015 period. NoC is the number of fund management company. MS is the market share of fund management company. MS of top 3 is the market share of top three fund management companies is the proportion of assets managed by the three largest mutual fund management companies in a given year. MS of top 5 is the market share of top five fund management companies is the proportion of assets managed by the five largest mutual fund management companies in a given year. MS of top 10 is the market share of top ten fund management companies is the proportion of assets managed by the ten largest mutual fund management companies in a given year.

Table 3: Correlation matrix of independent variables

	1	2	3	4	5	6	7	8	9	10	11
1-Board size	1										
2-Board structure	-0.41	1									
3-IIHold	0.02	-0.05	1								
5-Ownership	-0.02	-0.08	-0.03	1							
5-No.funds	0.09	-0.06	-0.18	-0.1	1						
6-No.funds started	0.06	-0.08	-0.26	-0.06	**0.85**	1					
7-Herfindahl	-0.1	0.06	-0.06	0.19	-0.54	-0.37	1				
8-Market share	0.03	-0.02	0.11	-0.13	0.36	0.33	-0.28	1			
9-Abreturn	0.02	-0.04	0.05	0.01	0.14	0.11	-0.14	-0.02	1		
10-Expense	0.01	-0.04	0.41	0.1	-0.18	-0.21	0.05	-0.22	0.13	1	
11-Company size*	0.07	-0.02	0.09	-0.31	0.63	0.51	-0.6	0.62	0.13	-0.2	1

Notes: Pearson correlation coefficients for independent variables from 2005 to 2015. The variable with an asterisk (*) is measured in logarithmic; Independent variables with high correlation coefficients are marked boldface; Board size is the number of directors on the board of the fund management company. Managerial ownership is the percentage of ownership for board directors in a fund management company. Board structure is the percentage of independent directors. IIHold is the percentage of share hold by institutional investors for each fund management company. Market share is the ratio of assets managed by the fund management company and all assets managed by the open-end mutual fund industry. Abreturn is the difference between return of the fund management company and market return. Expense ratio is weighted average expense ratio computed across all the fund management company's funds. Company size is the log of total net assets managed by the fund management company. Number of funds per fund management company is the total number of funds in a fund management company in a given year. Herfindahl index across funds is the sum of the squared fraction of each fund's share of total fund management company assets. Number of funds started is total number of new funds started by a fund management company in a given year.

Table 4: Fixed effect regressions for Fund Management Company Expense Ratio

Dependent variable	Expense ratio							
Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Log(company assets)	-0.179	-0.193*	-0.158	-0.157	-0.154	-0.165	-0.164	-0.173
	(0.123)	(0.114)	(0.121)	(0.107)	(0.123)	(0.115)	(0.116)	(0.109)
Return	-0.00831***		-0.0134***		-0.00788***		-0.00727***	
	(0.00267)		(0.00244)		(0.00266)		(0.00269)	
Abnormal return		0.00370		0.00656**		0.00328		0.00278
		(0.00273)		(0.00252)		(0.00284)		(0.00273)
No. of funds started	-0.00860	-0.00642	-0.0224***	-0.0294***	-0.0106	-0.00895	0.00945	0.0120*
	(0.00836)	(0.00832)	(0.00850)	(0.00837)	(0.00842)	(0.00825)	(0.00633)	(0.00664)
Market share	-0.0507	-0.0478	-0.0470	-0.0438	-0.0592	-0.0568	-0.0780	-0.0774
	(0.0497)	(0.0472)	(0.0499)	(0.0460)	(0.0490)	(0.0469)	(0.0504)	(0.0489)
Herfindahl index	-0.883	-0.99	-0.716	-0.792	-0.857	-0.956	-0.686	-0.766
	(0.71)	(0.673)	(0.696)	(0.619)	(0.708)	(0.674)	(0.676)	(0.643)
Board size	0.00875	-0.00462						
	(0.0508)	(0.0532)						
Board structure			-0.0176*	-0.0164*				
			(0.00896)	(0.00986)				
Ownership					0.508	0.546		
					(0.634)	(0.617)		
IIHold							0.0130***	0.0136***
							(0.00356)	(0.00346)
Constant	6.311**	6.709**	6.678**	6.603**	5.794*	5.988**	5.098*	5.213*
	(3.023)	(2.827)	(3.056)	(2.691)	(3.043)	(2.822)	(3.043)	(2.855)
Observations	731	731	731	731	731	731	731	731
R-squared	0.246	0.217	0.196	0.089	0.260	0.232	0.296	0.272

Note: The table reports results of the fixed effect models investigating the contractual mutual fund governance on expense ratio for the period 2005 to 2015. The dependent variable is fund management company's expense ratio. For the independent variables the paper adopts board size: it is the number of directors on the board of the fund management company; Board structure is the percentage of independent directors on the board of the fund management company; Ownership is including managerial ownership and board ownership; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Return is the raw return of the fund management company; Abnormal return is computed as the difference between return of the fund management company and market return; No. of funds started is total number of new funds started by a fund management company in a given year; Market share is calculated by the sum of all assets under management by each company divided by all assets under management in the fund industry; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 5: Fixed effect regressions for Fund Management Company Performance

Dependent variable	Performance - Return				Performance - Abnormal return			
Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Log(company assets)	-6.565***	-6.622***	-6.881***	-6.505***	5.352***	5.351***	5.720***	5.296***
	(1.535)	(1.558)	(1.589)	(1.568)	(1.903)	(1.915)	(1.864)	(1.876)
No. of funds	7.763***	7.845***	8.138***	7.640***	2.742	2.712	2.391	3.342
	(2.446)	(2.436)	(2.468)	(2.495)	(2.252)	(2.248)	(2.266)	(2.194)
Expense	-6.476***	-6.534***	-6.283***	-6.285***	2.495	2.509	2.278	1.824
	(1.810)	(1.815)	(1.849)	(1.904)	(2.098)	(2.102)	(2.179)	(2.227)
Market share	1.818*	1.754*	1.825*	1.765*	-2.726***	-2.685***	-2.819***	-2.919***
	(1.056)	(1.048)	(1.030)	(1.022)	(0.937)	(0.948)	(0.941)	(1.018)
Herfindahl index	11.4	11.5	11.8	11	11.7	11.6	11.4	13.7*
	(8.49)	(8.51)	(8.27)	(8.73)	(7.88)	(7.90)	(8.05)	(7.78)
Board size	1.686*				-0.676			
	(0.883)				(0.783)			
Board structure		-0.213				0.0359		
		(0.233)				(0.216)		
Ownership			-6.513				6.912*	
			(6.367)				(3.937)	
IIHold				-0.0350				0.113**
				(0.0460)				(0.0567)
Constant	134.9***	159.2***	156.1***	150.7***	-132.0***	-139.3***	-145.5***	-144.5***
	(34.70)	(36.34)	(34.46)	(34.40)	(41.65)	(45.08)	(40.91)	(42.39)
Observations	731	731	731	731	731	731	731	731
R-squared	0.661	0.660	0.661	0.660	0.203	0.203	0.206	0.208

Note: The table reports results of the fixed effect models investigating the contractual mutual fund governance on performance for the period 2005 to 2015. The dependent variable is fund management company's raw return and abnormal return. For the independent variables the paper adopts board size: it is the number of directors on the board of the fund management company; Board structure is the percentage of independent directors on the board of the fund management company; Ownership is including managerial ownership and board ownership; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; No. of funds is total number of funds in a fund management company in a given year; Market share is calculated by the sum of all assets under management by each company divided by all assets under management in the fund industry; Log (age) is the number of years for a fund management company exists in the industry; Expense is the fund management company's expense ratio; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 6: Fixed effect regressions for Fund Management Company Market Share

Dependent variable	Market share							
Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Log(company assets)	0.838***	0.835***	0.848***	0.845***	0.857***	0.854***	0.828***	0.825***
	(0.221)	(0.224)	(0.220)	(0.223)	(0.222)	(0.225)	(0.206)	(0.208)
No. of funds	-0.825***	-0.785***	-0.831***	-0.792***	-0.848***	-0.808***	-0.789***	-0.746***
	(0.172)	(0.165)	(0.174)	(0.166)	(0.177)	(0.170)	(0.167)	(0.161)
Return	0.00309*		0.00297*		0.00311*		0.00297*	
	(0.00160)		(0.00162)		(0.00161)		(0.00159)	
Abnormal return		-0.00405*		-0.00399*		-0.00420*		-0.00433*
		(0.00218)		(0.00219)		(0.00221)		(0.00231)
Expense	0.0375	0.0275	0.0432	0.0337	0.0267	0.0167	-0.000576	-0.0112
	(0.0403)	(0.0374)	(0.0417)	(0.0387)	(0.0426)	(0.0399)	(0.0511)	(0.0493)
Herfindahl index	0.376	0.456	0.38	0.458	0.347	0.429	0.477	0.565
	(0.645)	(0.64)	(0.646)	(0.641)	(0.632)	(0.628)	(0.679)	(0.676)
Board size	-0.116**	-0.113**						
	(0.0559)	(0.0552)						
Board structure			0.0284*	0.0277*				
			(0.0164)	(0.0164)				
Ownership					0.378**	0.384**		
					(0.156)	(0.171)		
IIHold							0.00644	0.00678
							(0.00418)	(0.00430)
Constant	-15.37***	-15.41***	-17.72***	-17.70***	-16.76***	-16.79***	-16.61***	-16.67***
	(5.183)	(5.273)	(5.041)	(5.132)	(5.077)	(5.168)	(4.950)	(5.037)
Observations	731	731	731	731	731	731	731	731
R-squared	0.282	0.286	0.281	0.285	0.281	0.286	0.285	0.291

Note: The table reports results of the fixed effect models investigating the contractual mutual fund governance on market share for the period 2005 to 2015. The dependent variable is fund management company's market share. For the independent variables the paper adopts board size: it is the number of directors on the board of the fund management company; Board structure is the percentage of independent directors on the board of the fund management company; Ownership is including managerial ownership and board ownership; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Return is the fund management company's raw return; No. of funds is total number of funds in a fund management company in a given year; Return is the raw return of the fund management company; Abnormal return is computed as the difference between return of the fund management company and market return; Expense is the fund management company's expense ratio; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 7: Dynamic panel regressions for Fund Management Company Expense Ratio

Dependent variable	Expense ratio							
Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
L.expense ratio	0.278***	0.205**	-0.0863*	-0.254***	0.273***	0.227**	0.211***	0.164**
	(0.0454)	(0.0882)	(0.0507)	(0.0554)	(0.0406)	(0.0872)	(0.0424)	(0.0711)
Log(company assets)	-0.111	-0.0658	-0.496***	-0.598***	-0.0637	-0.292**	-0.0890	-0.156
	(0.0757)	(0.0816)	(0.112)	(0.145)	(0.0984)	(0.132)	(0.101)	(0.112)
Return	-0.0123***		-0.0298***		-0.0124***		-0.0119***	
	(0.00188)		(0.00377)		(0.00322)		(0.00222)	
Abnormal return		0.00856***		0.0266***		0.00418		0.000518
		(0.00220)		(0.00419)		(0.00410)		(0.00401)
No. of funds started	-0.0143	-0.0165*	0.0356**	0.0214	-0.0229	3.55e-05	-0.000625	0.0293***
	(0.0103)	(0.00947)	(0.0154)	(0.0174)	(0.0147)	(0.0136)	(0.0127)	(0.0100)
Market share	0.0417	-0.126**	-0.0286	0.0790	0.00476	0.0130	-0.0396	-0.178***
	(0.0597)	(0.0605)	(0.0816)	(0.0624)	(0.0629)	(0.0565)	(0.0549)	(0.0649)
Herfindahl index	0.682	0.388	0.179	-0.497	0.889	-0.882	0.648	-0.477
	(0.481)	(0.612)	(0.981)	(1.111)	(0.744)	(0.866)	(0.65)	(0.744)
Board size	0.0440	-0.0819						
	(0.0730)	(0.123)						
Board structure			-0.0488*	-0.0337*				
			(0.0264)	(0.0171)				
Ownership					0.543	0.0300		
					(0.993)	(0.859)		
IIHold							0.00672**	0.0241***
							(0.00333)	(0.00412)
Constant	3.503*	3.857*	15.69***	17.66***	2.735	8.500***	3.088	3.874
	(2.061)	(2.217)	(3.366)	(3.795)	(2.394)	(3.161)	(2.487)	(2.956)
Observations	636	636	636	636	636	636	636	636
AR(2)	0.13	0.289	0.101	0.173	0.158	0.174	0.135	0.275
Hansen p value	0.773	0.149	0.132	0.196	0.364	0.194	0.474	0.22

Note: The table reports results of the dynamic panel models investigating the contractual mutual fund governance on expense ratio for the period 2005 to 2015. The dependent variable is fund management company's expense ratio. For the independent variables the paper adopts board size: it is the number of directors on the board of the fund management company; Board structure is the percentage of independent directors on the board of the fund management company; Ownership is including managerial ownership and board ownership; L.expense ratio is the one year lagged of the fund management company's expense ratio; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Return is the raw return of the fund management company; Abnormal return is computed as the difference between return of the fund management company and market return; No. of funds started is total number of new funds started by a fund management company in a given year; Market share is calculated by the sum of all assets under management by each company divided by all assets under management in the fund industry; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 8: Dynamic panel regressions for Fund Management Company Performance

Dependent variable	Performance - Return				Performance - Abnormal return			
Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
L.performance	0.186***	0.115***	0.179***	0.217***	-0.151***	-0.366***	-0.122***	-0.185***
	(0.0559)	(0.0403)	(0.0499)	(0.0562)	(0.0395)	(0.0594)	(0.0424)	(0.0432)
Log(company assets)	-24.42***	-19.53***	-26.86***	-26.54***	15.27***	11.01***	20.39***	15.99***
	(4.406)	(4.146)	(4.310)	(4.757)	(3.202)	(3.467)	(3.402)	(3.044)
No. of funds	25.47***	21.02***	27.86***	28.56***	-5.119	-0.351	-11.23***	-5.646
	(6.156)	(5.711)	(5.866)	(5.948)	(3.667)	(3.870)	(4.110)	(3.602)
Expense	-24.79***	-14.27***	-21.80***	-24.07***	13.94***	7.178**	15.02***	9.474***
	(3.270)	(2.408)	(3.479)	(5.173)	(2.705)	(3.045)	(2.906)	(3.140)
Market share	7.099***	8.550***	7.054***	9.553***	-6.550***	-6.953***	-6.263***	-8.970***
	(2.411)	(2.890)	(2.484)	(2.722)	(1.581)	(1.861)	(1.390)	(1.761)
Herfindahl index	33.9**	32.6***	30.3**	28.4*	-1.62	2.67	1.01	8.86
	(15.6)	(11.1)	(14.9)	(17.2)	(9.13)	(11.7)	(9.52)	(7.78)
Board size	8.077**				-7.795***			
	(3.724)				(2.644)			
Board structure		-0.423				0.167		
		(0.439)				(0.358)		
Ownership			-115.5**				96.88***	
			(45.56)				(29.21)	
IIHold				-0.0112				0.272***
				(0.131)				(0.0830)
Constant	474.2***	437.4***	597.4***	583.8***	-296.3***	-271.1***	-477.9***	-388.9***
	(107.5)	(89.31)	(93.68)	(103.3)	(72.41)	(80.22)	(73.03)	(65.47)
Observations	636	636	636	636	636	636	636	636
AR(2)	0.534	0.549	0.941	0.772	0.33	0.12	0.473	0.55
Hansen p value	0.626	0.599	0.452	0.498	0.602	0.573	0.556	0.633

Note: The table reports results of the dynamic panel models investigating the contractual mutual fund governance on performance for the period 2005 to 2015. The dependent variable is fund management company's performance. For the independent variables the paper adopts board size: it is the number of directors on the board of the fund management company; Board structure is the percentage of independent directors on the board of the fund management company; Ownership is including managerial ownership and board ownership; L.performance is the one year lagged estimate of the performance variable and is used to measure fund management company performance persistence under each model; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Return is the fund management company's raw return; No. of funds is total number of funds in a fund management company in a given year; Market share is calculated by the sum of all assets under management by each company divided by all assets under management in the fund industry; Log (age) is the number of years for a fund management company exists in the industry; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 9: Dynamic panel regressions for Fund Management Company Market Share

Dependent variable	Market share							
Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
L.market share	0.402***	0.494***	0.435***	0.443***	0.485***	0.458***	0.454***	0.447***
	(0.0684)	(0.0863)	(0.0928)	(0.0853)	(0.0944)	(0.0828)	(0.0840)	(0.0968)
Log(company assets)	0.690***	0.669***	0.685***	0.638***	0.900***	0.869***	0.657***	0.662***
	(0.111)	(0.182)	(0.192)	(0.183)	(0.185)	(0.162)	(0.129)	(0.143)
No. of funds	-0.822***	-0.818***	-0.791***	-0.775***	-1.043***	-0.961***	-0.703***	-0.693***
	(0.169)	(0.211)	(0.224)	(0.196)	(0.213)	(0.203)	(0.167)	(0.166)
Return	0.00861***		0.00400		0.00925*		0.00543	
	(0.00302)		(0.00489)		(0.00473)		(0.00356)	
Abnormal return		4.15e-05		0.00177		-0.00375**		-0.00228
		(0.00323)		(0.00315)		(0.00185)		(0.00318)
Expense	0.0693	-0.180**	-0.121	-0.207**	0.0448	-0.00488	-0.291**	-0.345***
	(0.0765)	(0.0902)	(0.134)	(0.0834)	(0.102)	(0.0630)	(0.114)	(0.109)
Herfindahl index	0.213	0.665	0.488	0.785	0.239	0.886**	0.607	0.760*
	(0.308)	(0.433)	(0.442)	(0.485)	(0.374)	(0.421)	(0.368)	(0.387)
Board size	-0.117*	-0.0400						
	(0.0696)	(0.0854)						
Board structure			0.0581***	0.0550**				
			(0.0220)	(0.0218)				
Ownership					2.414**	1.683**		
					(1.112)	(0.719)		
IIHold							0.0130***	0.0132***
							(0.00265)	(0.00398)
Constant	-12.63***	-12.50***	-15.58***	-14.29***	-18.22***	-17.61***	-13.48***	-13.54***
	(2.317)	(3.576)	(4.464)	(4.341)	(4.081)	(3.435)	(2.777)	(3.158)
Observations	636	636	636	636	636	636	636	636
AR(2)	0.239	0.245	0.247	0.235	0.235	0.239	0.279	0.265
Hansen p-value	0.614	0.262	0.387	0.284	0.208	0.21	0.287	0.284

Note: The table reports results of the dynamic panel models investigating the contractual mutual fund governance on market share for the period 2005 to 2015. The dependent variable is fund management company's market share. For the independent variables the paper adopts board size: it is the number of directors on the board of the fund management company; Board structure is the percentage of independent directors on the board of the fund management company; Ownership is including managerial ownership and board ownership; L.market share is the one year lagged of market share; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Return is the fund management company's raw return; No. of funds is total number of funds in a fund management company in a given year; Return is the raw return of the fund management company; Abnormal return is computed as the difference between return of the fund management company and market return; Expense is the fund management company's expense ratio; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 10: The impact of shareholder structure on governance effectiveness

Dependent varaibls	Market share		Abnormal return		Expense ratio	
Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Top1	0.0176*		0.212*		0.00646	
	(0.0104)		(0.117)		(0.00619)	
Multop		-0.348		-3.340		-0.100
		(0.220)		(3.617)		(0.145)
Expense	-0.0934*	-0.0893	3.756*	3.814*		
	(0.0536)	(0.0547)	(1.994)	(2.014)		
Abnormal return	-0.00208	-0.00194			0.00518**	0.00525**
	(0.00153)	(0.00152)			(0.00239)	(0.00241)
No.of funds	-0.442***	-0.449***				
	(0.0995)	(0.104)				
Log(company assets)	0.520***	0.534***	3.572***	3.707***	0.0211	0.0250
	(0.135)	(0.136)	(0.917)	(0.922)	(0.0500)	(0.0496)
Company top 5	-0.135*	-0.118	-4.584**	-4.388**	0.0351	0.0414
	(0.0684)	(0.0720)	(2.222)	(2.180)	(0.0747)	(0.0754)
Market share			-2.203***	-2.104***	-0.111***	-0.108***
			(0.784)	(0.769)	(0.0259)	(0.0286)
No of funds started			7.008**	6.840**	-0.618***	-0.625***
			(3.053)	(3.046)	(0.0994)	(0.102)
Constant	-10.38***	-9.595***	-103.2***	-93.66***	1.456	1.755
	(2.954)	(2.838)	(20.26)	(20.08)	(1.096)	(1.117)
Observations	731	731	731	731	731	731
R-squared	0.217	0.211	0.077	0.075	0.071	0.070

Note: The table reports results of the fixed effect models investigating the shareholder structure on governance effectiveness for the period 2005 to 2015. The dependent variable is fund management company's market share, abnormal return and expense ratio. For the independent variables the paper adopts Top1: it is the largest shareholder's holding; Multop is a dummy variable if the fund management company has more than one largest shareholder and zero otherwise; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Return is the fund management company's raw return; No. of funds is total number of funds in a fund management company in a given year; Return is the raw return of the fund management company; Abnormal return is computed as the difference between return of the fund management company and market return; Expense is the fund management company's expense ratio; Company top 5 is a dummy equal to 1 if the company has a fund that is performing in the top 5% of all funds in its investment objectives; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 11: The impact of supervisory boards on governance effectiveness

Dependent variables	Market share	Abnormal return	Expense
Board of supervison	-0.140*	-0.257	0.0298
	(0.0717)	(1.344)	(0.0575)
Log(company assets)	0.833***	5.335***	-0.198*
	(0.222)	(1.887)	(0.115)
No. of funds	-0.736***	2.813	
	(0.167)	(2.327)	
Abnormal return	-0.00400*		0.00370
	(0.00218)		(0.00273)
Expense	0.0249	2.496	
	(0.0387)	(2.104)	
Herfindahl index	0.495	11.7	-0.99
	(0.641)	(7.85)	(0.672)
Market share		-2.690***	-0.0445
		(0.943)	(0.0477)
No. of funds started			-0.00733
			(0.00815)
Constant	-15.93***	-136.8***	6.663**
	(5.108)	(42.26)	(2.795)
Observations	731	731	731
R-squared	0.285	0.203	0.217

Note: The table reports results of the fixed effect models investigating the supervisory boards on governance effectiveness for the period 2005 to 2015. The dependent variable is fund management company's market share, abnormal return and expense ratio. For the independent variables the paper adopts supervisory boards: it is the number of supervisors on the board of the fund management company; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Return is the fund management company's raw return; No. of funds is total number of funds in a fund management company in a given year; Return is the raw return of the fund management company; Abnormal return is computed as the difference between return of the fund management company and market return; Expense is the fund management company's expense ratio; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 12: Fixed effect regressions for Fund Management Company Expense Ratio (Robustness check)

Dependent variable	Ad - Expense ratio			
Model	Model 1	Model 2	Model 3	Model 4
Log(family assets)	-0.238***	-0.243***	-0.247***	-0.234***
	(0.0422)	(0.0430)	(0.0441)	(0.0396)
Ad-return	-0.00487**	-0.00497**	-0.00495**	-0.00492**
	(0.00202)	(0.00203)	(0.00197)	(0.00201)
No. of funds started	0.00374	0.00332	0.00458	0.00925
	(0.00662)	(0.00653)	(0.00662)	(0.00713)
Market share	0.0725***	0.0765***	0.0753***	0.0645***
	(0.0210)	(0.0207)	(0.0216)	(0.0197)
Herfindahl index	-0.560***	-0.568***	-0.572***	-0.496***
	(0.166)	(0.165)	(0.169)	(0.151)
Board size	0.00228			
	(0.0719)			
Board structure		-0.0137*		
		(0.00761)		
Ownership			-0.193	
			(0.334)	
IIHold				0.00402**
				(0.00183)
Constant	5.285***	5.942***	5.511***	4.905***
	(1.020)	(1.127)	(1.037)	(0.911)
Observations	731	731	731	731
R-squared	0.185	0.189	0.189	0.196

Note: The table reports results of the fixed effect models investigating the contractual mutual fund governance on expense ratio for the period 2005 to 2015. The dependent variable is fund management company's objective adjusted expense ratio. For the independent variables the paper adopts board size: it is the number of directors on the board of the fund management company; Board structure is the percentage of independent directors on the board of the fund management company; Ownership is including managerial ownership and board ownership; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Adreturn is the objective adjusted return; No. of funds started is total number of new funds started by a fund management company in a given year; Market share is calculated by the sum of all assets under management by each company divided by all assets under management in the fund industry; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 13: Fixed effect regressions for Fund Management Company Performance (Robustness check)

Dependent variable	Performance - Ad-return			
Model	Model 1	Model 2	Model 3	Model 4
Log(family assets)	-1.166	-1.239	-1.355	-1.125
	(0.865)	(0.860)	(0.893)	(0.862)
No. of funds	2.567**	2.571**	2.738**	2.645**
	(1.191)	(1.175)	(1.201)	(1.208)
Ad-Expense	-2.464**	-2.509**	-2.533**	-2.546**
	(1.016)	(1.020)	(0.993)	(1.026)
Market share	0.371	0.413	0.423	0.312
	(0.439)	(0.435)	(0.441)	(0.420)
Herfindahl index	2.64	2.55	2.67	3.19
	(2.67)	(2.65)	(2.65)	(2.81)
Board size	0.0849			
	(0.492)			
Board structure		-0.149		
		(0.104)		
Ownership			-2.396	
			(2.532)	
IIHold				0.0269
				(0.0236)
Constant	17.66	25.79	22.47	15.41
	(17.71)	(19.11)	(18.66)	(18.19)
Observations	731	731	731	731
R-squared	0.050	0.051	0.051	0.051

Note: The table reports results of the fixed effect models investigating the contractual mutual fund governance on performance for the period 2005 to 2015. The dependent variable is fund management company's objective adjusted return. For the independent variables the paper adopts board size: it is the number of directors on the board of the fund management company; Board structure is the percentage of independent directors on the board of the fund management company; Ownership is including managerial ownership and board ownership; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Market share is calculated by the sum of all assets under management by each company divided by all assets under management in the fund industry; AdExpense is the fund management company's objective adjusted expense ratio; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 14: Fixed effect regressions for Fund Management Company Market Share (Robustness check)

Dependent variable	Market share			
Model	Model 1	Model 2	Model 3	Model 4
Log(family assets)	0.877***	0.886***	0.904***	0.876***
	(0.231)	(0.230)	(0.233)	(0.223)
No. of funds	-0.827***	-0.830***	-0.859***	-0.814***
	(0.170)	(0.172)	(0.176)	(0.169)
Ad-return	0.00198	0.00220	0.00225	0.00166
	(0.00254)	(0.00253)	(0.00258)	(0.00237)
Ad-Expense	0.251***	0.251**	0.254**	0.222***
	(0.0947)	(0.0957)	(0.0974)	(0.0839)
Herfindahl index	0.482	0.482	0.456	0.561
	(0.635)	(0.635)	(0.624)	(0.672)
Board size	-0.122**			
	(0.0522)			
Board structure		0.0304**		
		(0.0151)		
Ownership			0.413**	
			(0.177)	
IIHold				0.00514
				(0.00350)
Constant	-16.09***	-18.52***	-17.71***	-17.53***
	(5.341)	(5.256)	(5.295)	(5.267)
Observations	731	731	731	731
R-squared	0.296	0.296	0.296	0.295

Note: The table reports results of the fixed effect models investigating the contractual mutual fund governance on market share for the period 2005 to 2015. The dependent variable is fund management company's market share. For the independent variables the paper adopts board size: it is the number of directors on the board of the fund management company; Board structure is the percentage of independent directors on the board of the fund management company; Ownership is including managerial ownership and board ownership; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Return is the fund management company's raw return; No. of funds is total number of funds in a fund management company in a given year; Ad-Return is the raw return of the fund management company; Abnormal return is computed as the difference between return of the fund management company and market return; Ad-Expense is the fund management company's expense ratio; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 15: Dynamic panel regressions for the impact of shareholder structure on governance effectiveness

Dependent varaibls	Market share		Abnormal return		Expense ratio	
Model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
L.dependent	0.573***	0.600***	-0.106*	-0.143*	0.184***	0.191***
	(0.161)	(0.153)	(0.0629)	(0.0757)	(0.0674)	(0.0604)
Top1	0.0186*		0.649**		0.00280	
	(0.0106)		(0.247)		(0.00978)	
Multop		-0.648		-23.32**		-0.288
		(0.611)		(8.926)		(0.362)
Log(company assets)	0.119	0.160	9.131***	8.822***	-0.0549	-0.0507
	(0.0879)	(0.110)	(1.938)	(2.102)	(0.0755)	(0.0699)
No.of funds	-0.213**	-0.245**				
	(0.0885)	(0.1000)				
Expense	-0.0411	-0.0637	14.03***	16.39***		
	(0.0619)	(0.0567)	(2.764)	(3.588)		
Market share			-4.976**	-4.662**	-0.193**	-0.197***
			(2.258)	(2.121)	(0.0735)	(0.0684)
Company top 5	0.0284	0.0561	-2.546	-1.882	0.0642	0.0627
	(0.0668)	(0.0669)	(2.493)	(2.309)	(0.0718)	(0.0765)
Abnormal return	0.00112	0.000599			0.00637**	0.00653**
	(0.00281)	(0.00258)			(0.00312)	(0.00311)
No of funds started			15.17***	16.52***	-0.904***	-0.952***
			(5.156)	(5.584)	(0.172)	(0.149)
Constant	-2.583	-2.110	-276.2***	-226.5***	3.372*	3.626**
	(2.083)	(2.523)	(48.17)	(50.36)	(1.795)	(1.652)
Observations	636	636	636	636	636	636
AR (2)	0.356	0.32	0.203	0.514	0.17	0.178
Hansen p value	0.489	0.67	0.335	0.206	0.304	0.315

Note: The table reports results of the dynamic panel models investigating the shareholder structure on governance effectiveness for the period 2005 to 2015. The dependent variable is fund management company's market share, abnormal return and expense ratio. For the independent variables the paper adopts Top1: it is the largest shareholder's holding; Multop is a dummy variable if the fund management company has more than one largest shareholder and zero otherwise; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Return is the fund management company's raw return; No. of funds is total number of funds in a fund management company in a given year; Return is the raw return of the fund management company; Abnormal return is computed as the difference between return of the fund management company and market return; Expense is the fund management company's expense ratio; Company top 5 is a dummy equal to 1 if the company has a fund that is performing in the top 5% of all funds in its investment objectives; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 16: Dynamic panel regressions for the impact of supervisory boards on governance effectiveness

Dependent variables	Market share	Abnormal return	Expense
L.dependent	0.594***	-0.370***	0.262***
	(0.102)	(0.0577)	(0.0770)
Board of supervison	-0.0893	-2.011	0.0367
	(0.104)	(1.679)	(0.0792)
Log(company assets)	0.482***	6.635	-0.245**
	(0.129)	(4.182)	(0.107)
No. of funds	-0.533***	5.081	
	(0.142)	(5.634)	
Abnormal return	-0.000638		0.00335
	(0.00206)		(0.00371)
Expense	-0.129*	5.601**	
	(0.0682)	(2.698)	
Herfindahl index	0.717*	-6.71	-0.894
	(0.367)	(16.1)	(0.828)
Market share		-1.574	-0.00901
		(1.850)	(0.0585)
No. of funds started			-0.180
			(0.148)
Constant	-9.048***	-170.2*	7.293***
	(2.671)	(89.08)	(2.550)
Observations	636	636	636
AR (2)	0.296	0.181	0.219
Hansen p value	0.133	0.271	0.256

Note: The table reports results of the dynamic panel models investigating the supervisory boards on governance effectiveness for the period 2005 to 2015. The dependent variable is fund management company's market share, abnormal return and expense ratio. For the independent variables the paper adopts supervisory boards: it is the number of supervisors on the board of the fund management company; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Return is the fund management company's raw return; No. of funds is total number of funds in a fund management company in a given year; Return is the raw return of the fund management company; Abnormal return is computed as the difference between return of the fund management company and market return; Expense is the fund management company's expense ratio; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 17: Dynamic panel regressions for Fund Management Company Expense Ratio (Robustness check)

Dependent variable	Ad - Expense ratio			
Model	Model 1	Model 2	Model 3	Model 4
L.expense ratio	0.165***	0.222***	0.151***	0.129***
	(0.0485)	(0.0475)	(0.0510)	(0.0417)
Log(family assets)	-0.261***	-0.140*	-0.274***	-0.265***
	(0.0704)	(0.0723)	(0.0694)	(0.0563)
Ad-return	-0.00585	-0.00860	0.00100	0.00340
	(0.0100)	(0.00836)	(0.00923)	(0.00908)
No. of funds started	0.0114	-0.00268	0.0140*	0.0291***
	(0.00890)	(0.00805)	(0.00781)	(0.00842)
Market share	0.0636	0.0946**	0.0560	0.0200
	(0.0409)	(0.0435)	(0.0385)	(0.0383)
Herfindahl index	-0.448*	0.101	-0.510**	-0.409*
	(0.226)	(0.273)	(0.252)	(0.213)
Board size	0.135*			
	(0.0756)			
Board structure		-0.0358**		
		(0.0165)		
Ownership			-0.545	
			(0.844)	
IIHold				0.00762***
				(0.00194)
Constant	4.694***	4.268**	6.224***	5.433***
	(1.591)	(2.005)	(1.629)	(1.305)
Observations	636	636	636	636
AR(2)	0.432	0.887	0.486	0.428
Hansen p value	0.265	0.443	0.179	0.405

Note: The table reports results of the dynamic panel models investigating the contractual mutual fund governance on expense ratio for the period 2005 to 2015. The dependent variable is fund management company's objective adjusted expense ratio. For the independent variables the paper adopts board size: it is the number of directors on the board of the fund management company; Board structure is the percentage of independent directors on the board of the fund management company; Ownership is including managerial ownership and board ownership; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Adreturn is the objective adjusted return; No. of funds started is total number of new funds started by a fund management company in a given year; Market share is calculated by the sum of all assets under management by each company divided by all assets under management in the fund industry; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 18: Dynamic panel regressions for Fund Management Company Performance (Robustness check)

Dependent variable	Performance - Ad-return			
Model	Model 1	Model 2	Model 3	Model 4
L.performance	-0.152*	-0.156***	-0.261**	-0.216*
	(0.0900)	(0.0593)	(0.127)	(0.125)
Log(family assets)	-2.026	-3.188*	-4.209**	-3.500**
	(1.314)	(1.811)	(1.977)	(1.681)
No. of funds	3.697**	3.932	5.879**	6.426***
	(1.836)	(2.487)	(2.593)	(2.146)
Ad-Expense	-3.806**	-5.267***	-2.677*	-4.419***
	(1.649)	(1.599)	(1.443)	(1.535)
Market share	0.164	0.493	0.838	-0.246
	(0.766)	(0.906)	(1.075)	(1.287)
Herfindahl index	7.45	5.8	5.29	3.14
	(6.35)	(5.38)	(5.42)	(5.91)
Board size	2.409**			
	(1.166)			
Board structure		-0.366		
		(0.290)		
Ownership			-45.07*	
			(23.14)	
IIHold				0.109***
				(0.0393)
Constant	13.52	75.09*	82.65**	57.13
	(30.01)	(40.67)	(39.39)	(34.81)
Observations	636	636	636	636
AR(2)	0.315	0.235	0.119	0.197
Hansen p value	0.367	0.429	0.372	0.369

Note: The table reports results of the dynamic panel models investigating the contractual mutual fund governance on performance for the period 2005 to 2015. The dependent variable is fund management company's objective adjusted return. For the independent variables the paper adopts board size: it is the number of directors on the board of the fund management company; Board structure is the percentage of independent directors on the board of the fund management company; Ownership is including managerial ownership and board ownership; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Market share is calculated by the sum of all assets under management by each company divided by all assets under management in the fund industry; AdExpense is the fund management company's objective adjusted expense ratio; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Table 19: Dynamic panel regressions for Fund Management Company Market Share (Robustness check)

Dependent variable	Market share			
Model	Model 1	Model 2	Model 3	Model 4
L.market share	0.485***	0.441***	0.476***	0.447***
	(0.102)	(0.102)	(0.0956)	(0.0971)
Log(family assets)	0.788***	0.801***	0.898***	0.797***
	(0.126)	(0.164)	(0.175)	(0.114)
No. of funds	-0.987***	-0.971***	-1.093***	-0.937***
	(0.206)	(0.210)	(0.225)	(0.185)
Ad-return	0.00894	0.0124	0.0165	0.00719
	(0.00914)	(0.0145)	(0.0120)	(0.0106)
Ad-Expense	-0.0601	-0.109	-0.0379	-0.225
	(0.226)	(0.240)	(0.227)	(0.192)
Herfindahl index	0.629	0.811	0.731	0.848*
	(0.48)	(0.499)	(0.523)	(0.485)
Board size	-0.0125			
	(0.0835)			
Board structure		0.0470**		
		(0.0229)		
Ownership			1.872*	
			(1.054)	
IIHold				0.00871***
				(0.00275)
Constant	-15.46***	-17.70***	-17.98***	-16.49***
	(2.610)	(3.828)	(3.739)	(2.454)
Observations	636	636	636	636
AR(2)	0.227	0.2	0.204	0.2
Hansen p value	0.272	0.256	0.129	0.233

Note: The table reports results of the dynamic panel models investigating the contractual mutual fund governance on market share for the period 2005 to 2015. The dependent variable is fund management company's market share. For the independent variables the paper adopts board size: it is the number of directors on the board of the fund management company; Board structure is the percentage of independent directors on the board of the fund management company; Ownership is including managerial ownership and board ownership; IIHold is the percentage of institutional investors holding in a fund management company; Log(company assets) is the log of fund management company asset; Return is the fund management company's raw return; No. of funds is total number of funds in a fund management company in a given year; Ad-Return is the raw return of the fund management company; Abnormal return is computed as the difference between return of the fund management company and market return; Ad-Expense is the fund management company's expense ratio; Herfindahl index is computed as the sum of the squared fractions of the company's assets invested in each fund; the financial crisis period from 2007 to 2009 is a series of year dummy variables and is not reported in this table, for instance, the year of 2007 which takes the value of 1 if the year is 2007 and the value of 0 otherwise. The numbers in the parentheses are corrected standard errors, *significance at the 10% level; ** significance at the 5% level; *** significance at the 1% level.

Appendix 1

Variables definitions

Board size	The number of directors on the board of the fund management company
Supervisory Board size	The number of supervisors on the supervisory board of fund management company
Board structure	The number of independent directors
Portion of Independents	The percentage of independent directors
Managerial ownership	The percentage of ownership for board directors in a fund management company
Institutional Investor Hold	The percentage of share hold by institutional investors for each fund management company
Expense ratio	Weighted average expense ratio computed across all the fund management company's funds
Return	Weighted average raw return computed across all the fund management company's funds
Abnormal retrun	The difference between return of the fund management company and market return
Market share	The ratio of assets managed by the fund management company and all assets managed by the open-end mutual fund industry
Company Size	The log of total net assets managed by the fund management company
No. of Objective	The total number of objectives in a fund management company in a given year
No. of funds	The total number of funds in a fund management company in a given year
Herfindahl index	The sum of the squared fraction of each fund's share of total fund management company assets
No. of funds started	The total number of new funds started by a fund management company in a given year
Top 1	The largest shareholder's holding
Multop	A dummy variable if the fund management company has more than one largest shareholder and zero otherwise